Contributed by: A/Prof. Rupesh Agrawal and Dr. William Rojas-Carabali, NHG Eye Institute @ TTSH

PROGRAMME FOR OCULAR INFLAMMATION AND INFECTION TRANSLATIONAL RESEARCH (PROTON): A BEACON OF HOPE IN THE FIGHT AGAINST OCULAR INFLAMMATORY DISEASES

In the vibrant tapestry of global health research, few endeavours shine as brightly as PROTON, the Programme for Ocular Inflammation and Infection Translational Research. This initiative stands at the forefront of interdisciplinary collaboration, dedicated to unravelling the complexities of ocular inflammatory and infectious diseases (OIID). By weaving together, a rich fabric of expertise from biological, immunological, cellular, computational and clinical sciences, PROTON is on a mission to pioneer research and develop innovative solutions that tackle the pressing challenges of OIID head-on.

Launching a New Era in Ocular Health Research: The Inauguration of PROTON

Official launch of PROTON is scheduled for April 21st at the prestigious Lee Kong Chian (LKC) School of Medicine, marking the beginning of a new chapter in the fight against OIID. This landmark event promises to be a watershed moment in ocular health research in Southeast Asia and the world, graced by the honour of having Prof Joseph Sung, Dean of LKC School of Medicine, as a distinguished guest. His participation underscores the collaborative spirit that PROTON embodies and highlights the strengthening ties between LKC School of Medicine and Tan Tock Seng Hospital (TTSH) Eye Department.

In addition to the esteemed presence of Prof Sung, the event will host an array of renowned specialists from the United States, India, and Singapore. This international assembly of experts not only signifies PROTON's global reach but also serves as a testament to the program's commitment to fostering worldwide collaborations in the realm of ocular health.

A Legacy of Innovation and Collaboration

At the core of PROTON's philosophy is a deep-seated commitment to advancing research and innovation in the realm of ocular health. Leveraging the ground-breaking developments of A/Prof Rupesh Agrawal in ophthalmology and visual sciences—through initiatives like the Ocular Autoimmune Systemic Inflammatory Infectious Study (OASIS), the Comprehensive Ocular Imaging Network (COIN), and the Collaborative Ocular Tuberculosis Study (COTS)—PROTON is building on a solid foundation of excellence. A/Prof Agrawal's extensive work, much of which was conducted during his tenure at Tan Tock Seng Hospital (TTSH), has been instrumental in shaping the course of OIID research, particularly in the field of uveitis where he serves as a senior consultant.

Illuminating the Path with Three Pillars of Excellence

PROTON's mission is illuminated by three main domains, each representing a pillar of its comprehensive research strategy:

1. Health Informatics: Transforming patient data into actionable insights through technology, PROTON is enhancing diagnosis, treatment, and personalized care in ocular health. This domain is a testament to the program's commitment to leveraging data for better patient outcomes.
2. Advanced Image Analytics: Utilizing state-of-the-art imaging technologies and artificial intelligence, PROTON is revolutionizing how ocular diseases are detected, monitored, and understood. This approach allows for unparalleled precision in ocular health research and patient care.
3. Basic Sciences: At the molecular level, PROTON is uncovering the underpinnings of ocular diseases. This research is crucial for identifying biomarkers for early diagnosis, prognosis, and the development of targeted therapies, promising a future where ocular diseases can be combated more effectively.

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Fostering Collaborations for a Healthier Tomorrow

PROTON's impact is magnified through its collaborative efforts, spearheaded by TTSH and supported by all three medical schools in Singapore (NTU, NUS, and Duke-NUS) alongside esteemed investment institutes both locally (A* Star, SERI, SUTD) and abroad. These partnerships have catalysed significant breakthroughs in ophthalmology, with projects like COTS and COIN reshaping global practices in the diagnosis and treatment of ocular diseases.

With a network that spans approximately 40 countries and continues to expand, PROTON's collaborative framework is a testament to the power of global cooperation in advancing medical research. The contributions from international partners have been invaluable, driving PROTON toward its goal of making a lasting impact in the world of ophthalmology.

The inclusion of specialists from diverse backgrounds and regions underscores the program's dedication to leveraging global knowledge and expertise. By bringing together leading minds in the field, the programmed aims to foster a rich exchange of ideas, enhance research methodologies, and ultimately contribute to the advancement of OIID on a global scale.

Empowering Tomorrow's Leaders: The PROTON Research Incubator

At the heart of PROTON's mission is the PROTON Research Incubator, designed to cultivate the next wave of leaders in the field of ocular inflammatory and infectious diseases (OIID). This program harnesses PROTON's interdisciplinary and collaborative framework to offer an immersive learning experience. It starts with an overview of OIID research, covering both the challenges and opportunities, and foundational research ethics. Participants receive hands-on training in advanced methodologies, including AI and ML applications in ophthalmology, and engage in workshops focused on biomarker discovery and studies design.

The incubator's mentorship program pairs up-and-coming researchers with experienced mentors, facilitating collaborative projects that give practical access to PROTON's vast resources and technologies. Additionally, it promotes professional growth through seminars, networking opportunities, and support for publishing and disseminating research findings. Through a blend of theoretical knowledge and practical application, the PROTON Research Incubator is set to inspire and equip a new generation of researchers, paving the way for ground-breaking advancements in ocular health.

Looking Ahead: A Vision for Global Impact

As we look to the future, PROTON's vision is clear: to become a global hub for OIID research, pioneering breakthroughs that transform our understanding, diagnosis, and treatment of these conditions. By fostering interdisciplinary collaboration and academic excellence, PROTON is not merely pursuing scientific innovation; it is shaping the future of ocular health on a global scale, striving to develop tailored interventions that promise better outcomes for patients worldwide.

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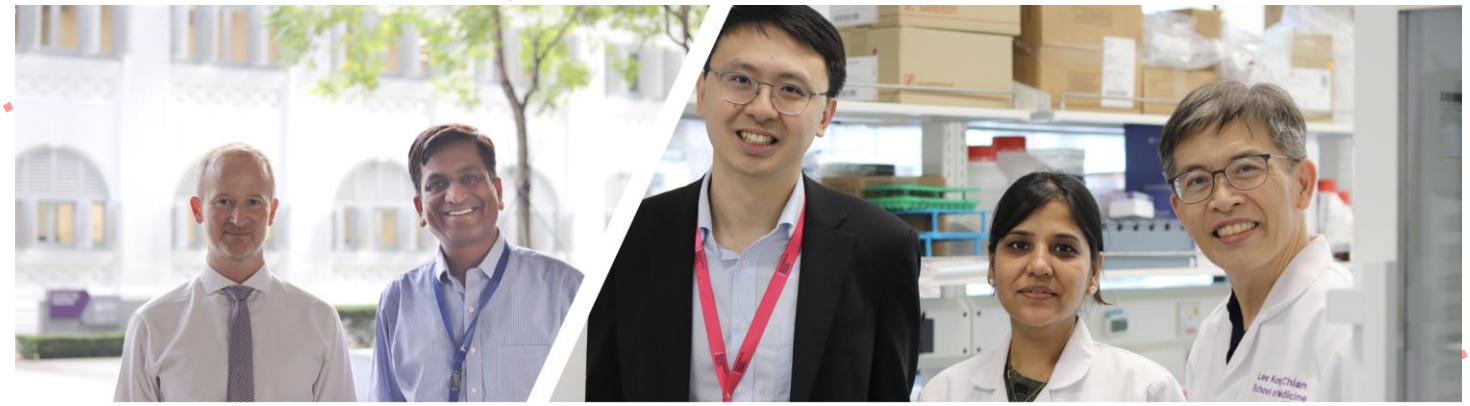
As we anticipate the official launch of PROTON, it is clear that this program is more than just a research initiative; it's a global movement towards a future free from the burden of ocular diseases. Through its commitment to interdisciplinary collaboration, academic excellence, and the development of innovative solutions, PROTON is poised to lead the way in transforming the landscape of OIID research and patient care.

The launch event at Lee Kong Chian School of Medicine is not just a ceremonial occasion; it's a beacon of hope for patients worldwide and a testament to what can be achieved when the global medical community comes together in pursuit of a common goal. As we celebrate the inauguration of PROTON, we also look forward to the breakthroughs and advancements that will emerge from this pioneering program, marking the dawn of a new era in ocular health research.



Top left: A/Prof Kevin Pethe and A/Prof Rupesh Agrawal.
Top right: A/Prof Sunny Wong, Dr Kajal Agrawal, Dr Arthur Chung.
Bottom left: standing: Dr Laura Gutierrez-Sinisterra and Dr William Rojas-Carabali, sitting: Joewee Boon, Shannon Choo, A/Prof Rupesh Agrawal, Hilbert Lam, Dr Carlos Cifuentes-González.
Bottom right: Top row: A/Prof Rupesh Agrawal, Middle row: Dr Carlos Cifuentes-González, Dr William Rojas-Carabali, Dr Lim Zijie, Shannon Choo, Bottom row: Dr Paul Hutchinson, Dr Bernett Lee, Dr Jayantha Gunaratne, Dr Amit Singhal

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